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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,176

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EXAMINER

BISHOP, ERIN D

ART UNIT

PAPER NUMBER

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11/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,176	Applicant(s) AKIYAMA ET AL.	
	Examiner ERIN D. BISHOP	Art Unit 3655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

on pg. 8, paragraph 2, line 3, element “internal teeth pins 24c” should be corrected to --internal teeth pins 24c2--;

on pg. 9, paragraph 1, lines 1-2, element “internal teeth gear body 21” should be corrected to --internal teeth gear body 28-- (inner teeth gear body 28 corresponds with subsequent-stage speed reducer 26, and inner gear teeth body 21 corresponds with front-stage speed reducer 20; see fig. 6);

on pg. 9, paragraph 1, line 5, element “inner teeth gear body 21” should be corrected to --inner teeth gear body 28--;

on pg. 9, paragraph 1, line 9, element “inner teeth gear body 21” should be corrected to --inner teeth gear body 28--.

Appropriate correction is required.

Claim Objections

2. Claim 4 is objected to because of the following informalities:

In claim 4, line 15, element “the pair of ribs” should be corrected to --the pair of rib sections-- (see claim 4, line 11).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, lines 9 and 17-18, the phrase “the axial line of the turning pivot” renders the claim indefinite because it lacks antecedent basis, and it is unclear if it is the same axial line previously claimed (line 3).

Regarding claim 1, lines 4-10, the phrase “the drive device including: a fixing section; a rotation input section; a rotation output section...; a planetary gear type speed reducer” renders the claim indefinite because the planetary gear type speed reducer appears to be a double inclusion of the fixing section, rotation input section, and rotation output section, which appear to be parts of the planetary gear type speed reducer.

Regarding claim 1, line 17, the phrase “positioned *nearer to* the heavy object” renders the claim indefinite because the term “nearer” is a relative term, and it is also unclear which element is positioned nearer to the heavy object.

Regarding claim 1, lines 13-14, the phrase “the turning arm and the drive device being disposed *within a width* of the heavy object” renders the claim indefinite because “a width” is a relative term.

Regarding claim 2, the language renders the claim indefinite because it is unclear as to what the applicant is claiming. For example, in the phrase “which is

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positioned on the orthogonal plane side” (lines 4-5) it is unclear which element is positioned on the orthogonal plane side. Also for example, the phrase “and an intersection obtained by crossing the axial line of the turning pivot with a line at a bearing contact angle to a perpendicular line of the one ball bearing” (lines 5-7) is unclear and appears to be incomplete.

Regarding claim 2, line 6, the phrase “the axial line of the turning pivot” renders the claim indefinite because it lacks antecedent basis, and it is unclear if it is the same axial line previously recited in claim 1 (line 3).

Regarding claim 3, lines 5-6, the phrase “the output rotation section of the previous-stage speed reducer” renders the claim indefinite because it lacks antecedent basis. It appears the claim should read “an output rotation section of the previous-stage speed reducer”.

Regarding claim 4, lines 5-6, the phrase “the fixing section a mounting flat surface” renders the claim indefinite because it is unclear.

Regarding claim 4, lines 14-15, the phrase “the fixing section of the planetary gear type speed reducer” renders the claim indefinite because it is unclear if it is the same fixing section previously recited in claim 1 (line 6).

Regarding claim 5, lines 4-10, the phrase “the drive device including: a fixing section; a rotation input section; a rotation output section...; a planetary gear type reducer” renders the claim indefinite because the planetary gear type reducer appears to be a double inclusion of the fixing section, rotation input section, and rotation output section, which appear to be parts of the planetary gear type speed reducer.

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Regarding claim 5, line 9, the phrase “the axial line of the turning pivot” renders the claim indefinite because it lacks antecedent basis, and it is unclear if it is the same axial line previously claimed (line 2).

Claims 2-4 are also rejected as being dependent from a rejected base claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Dalakian, U.S. Patent 5,222,409.

Regarding claim 1, as best understood, Dalakian discloses a turning device (shoulder of robot arm, col. 3, lines 39-41, and fig. 8) for a heavy object (lower arm 26, fig. 2) comprising:

a turning arm joined to the heavy object (upper arm 24, figs. 2 and 8), said turning arm being turnable around a turning pivot on an axial line (shoulder pivot 32, fig. 8); and

a drive device for driving a turning operation of the turning arm (see fig. 8), the drive device including:

a fixing section (rigid annulus 112, col. 6, lines 18-19, and fig. 8);

a rotation input section (wave generator 108, col. 6, line 16, and fig. 8);

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a rotation output section (crank 46, col. 6, line 40, and fig. 8) having a plane orthogonal to the axial line of the turning pivot (orthogonal plane of crank 46, see fig. A below);

a planetary gear type speed reducer (wave gear set, col. 6, line 17, and fig. 8) including a pair of ball bearings (bearings 144, fig. 8) disposed between the fixing section and the rotation output section (bearings 144 are disposed axially between rigid annulus 112 and crank 46, fig. 8); and

a motor (motor 70, col. 5, line 47, and fig. 8) including a rotor shaft (rotor 78, col. 5, line 54, and fig. 8) coaxially connected to a stator having a coil (stator, col. 5, line 48) and to the rotation input section (rotor 78 is coaxially connected to wave generator 108 via sun gear 82 of a planetary gear train, col. 5, lines 54-56, and fig. 8), the turning arm having a first plane connected to the plane of the rotation output section (first plane of upper arm 24, see fig. A below) and a second plane connected to the heavy object (second plane of upper arm 24, see fig. B below), positioned nearer to the heavy object than the axial line of the turning pivot and orthogonal to the first plane (see fig. B below), and the turning arm and the drive device being disposed within a width of the heavy object in the axial direction of the turning pivot (portions of upper arm 24 and the shoulder joint drive device are axially within a width of lower arm 26, fig. 8).

Regarding claim 2, as best understood, Dalakian discloses:

an axial center of the turning pivot (axial center of shoulder pivot 32, see fig. A below) is positioned within a distance between one of the pair of ball bearings, which is positioned on the orthogonal plane side of the rotation output section, and an intersection obtained by crossing the axial line of the turning pivot with a line at a bearing contact angle to a perpendicular line of the one ball bearing (line at a bearing contact angle, see fig. A below).

Regarding claim 3, as best understood, Dalakian discloses:

a previous-stage speed reducer (planetary gear train, col. 5, line 56, and fig. 8) as a previous-stage reduction gear mechanism is disposed between the planetary gear type speed reducer and the motor (the planetary gear train is disposed between motor 70 and the wave gear set, fig. 8);

an input rotation section of the previous-stage speed reducer (sun gear 82, col. 5, line 55, and fig. 8) and the rotor shaft of the motor are coaxially coupled to each other (rotor 78 is keyed to sun gear 82, col. 5, lines 54-55, and fig. 8); and

the output rotation section of the previous-stage speed reducer (annulus 92, col. 6, line 16, and fig. 8) and the input rotation section of the planetary gear type speed reducer are coaxially coupled to each other (annulus 92 and wave generator 108 are coaxially coupled, fig. 8).

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Regarding claim 4, as best understood, Dalakian discloses:

a supporting block for fixing the planetary gear type speed reducer (gear retaining ring 76, col. 5, line 50, and fig. 8) and a frame for mounting the supporting block (base 22, col. 5, line 51, and fig. 8) are provided;

the fixing section a mounting flat surface parallel to the plane of the rotation output section (mounting flat surface of rigid annulus 112, see fig. A below) which includes a circular outside-diameter section (see fig. 8);

the supporting block includes a first mounting surface for mounting the mounting flat surface of the fixing section of the planetary gear type speed reducer (first mounting surface of retaining ring 76, see fig. A below), a second mounting surface for mounting the frame and orthogonal to the first mounting surface (second mounting surface of retaining ring 76, see fig. A below), and a pair of rib sections for connecting outer ends of the first mounting surface with corresponding outer ends of the second mounting surface (rib sections, see fig. A below); and

the outside-diameter section of the mounting flat surface of the fixing section of the planetary gear type speed reducer is cut so that a side of the pair of ribs may be shorter than a circular outside diameter of said outside-diameter section (see fig. A below).

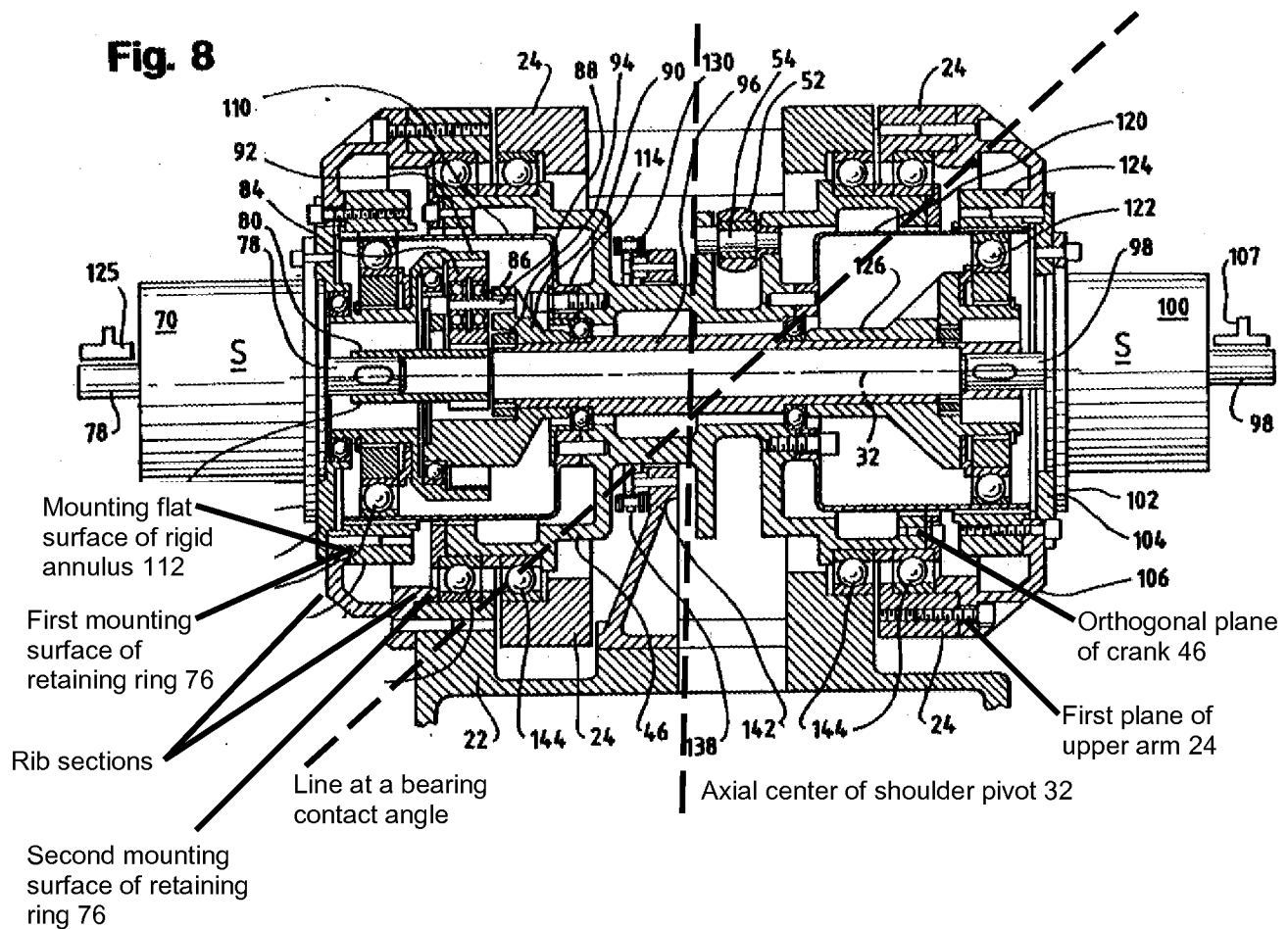


Figure A: Fig. 8 of Dalakian, U.S. Patent 5,222,409

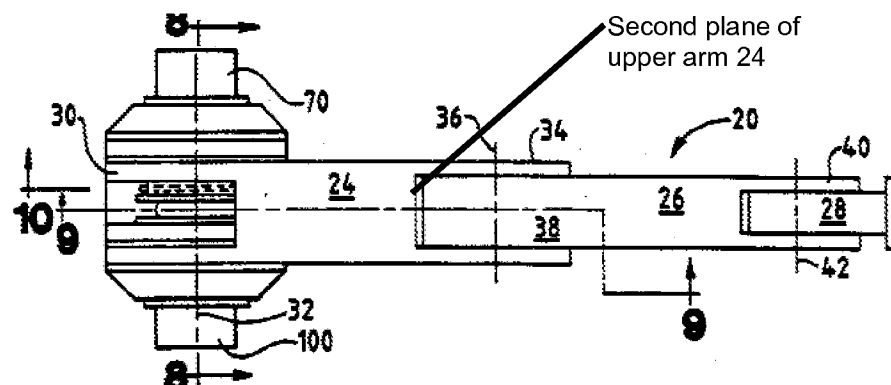


Figure B: Fig. 2 of Dalakian, U.S. Patent 5,222,409

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Regarding claim 5, as best understood, Dalakian discloses a turning device (shoulder of robot arm, col. 3, lines 39-41, and fig. 8) for a heavy object (lower arm 26, fig. 2) comprising:

a turning arm joined to the heavy object (upper arm 24, figs. 2 and 8) and turning around a turning pivot on an axial line (shoulder pivot 32, fig. 8); and

a drive device for driving a turning operation of the turning arm (see fig. 8), the drive device including:

a fixing section (rigid annulus 112, col. 6, lines 18-19, and fig. 8);

a rotation input section (wave generator 108, col. 6, line 16, and fig. 8);

a rotation output section (crank 46, col. 6, line 40, and fig. 8) having a plane orthogonal to the axial line of the turning pivot (orthogonal plane of crank 46, see fig. A above);

a planetary gear type reducer (wave gear set, col. 6, line 17, and fig. 8) having a pair of ball bearings (bearings 144, fig. 8) disposed between the fixing section and the rotation output section (bearings 144 are disposed axially between rigid annulus 112 and crank 46, fig. 8); and

a motor (motor 70, col. 5, line 47, and fig. 8) disposed coaxially to the rotation input section (motor 70 is coaxial to wave generator 108, col. 5, lines 54-56, and fig. 8), the turning arm having a first plane joined to the plane of the rotation output section (first plane of upper arm 24, see fig. A above) and a second plane orthogonal to the first plane (second plane of upper arm 24, see fig. B above), the turning arm and the drive device being disposed within a width

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of the heavy object in the axial direction of the turning pivot (portions of upper arm 24 and the shoulder joint drive device are axially within a width of lower arm 26, fig. 8).

Response to Arguments

7. Applicant's arguments filed 7/9/2009 have been fully considered but they are not persuasive.

In response to applicant's argument that Dalakian fails to disclose the turning arm and the drive device disposed within a width of the heavy object in the axial direction of the turning pivot (Applicant's Response, pg. 17), the examiner respectfully disagrees. The inner portions of the upper arm 24 and the drive device are axially disposed within a width of the lower arm 26 (see fig. B and rejection above).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN D. BISHOP whose telephone number is 571-270-3713. The examiner can normally be reached on Monday to Thursday, 7AM-4PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Le can be reached on 571-272-7092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erin D. Bishop/
Examiner, Art Unit 3655

/Sherry L Estremsky/
Primary Examiner, Art Unit 3655